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Concentrating Solar Power Market - Global Industry Size, Share, Trends, Opportunity, and Forecast, Segmented By Technology (Parabolic Trough, Linear Fresnel, Power Tower and Dish/Engine System), By Component (Power Block, Solar Field and Thermal Energy Storage System), By End-User (Utilities, Enhanced Oil Recovery and Others) By Region & Competition, 2021-2031F

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Abstracts

The Global Concentrating Solar Power Market is anticipated to expand from USD 7.87 billion in 2025 to USD 19.93 billion by 2031, reflecting a compound annual growth rate (CAGR) of 16.75%. These systems produce electricity by using lenses or mirrors to concentrate sunlight onto a receiver, generating thermal energy. Global market expansion is primarily driven by increasing electricity needs and stringent government regulations mandating the shift toward renewable energy sources. These core growth factors are distinct from emerging industry trends, like the incorporation of thermal energy storage. Data from the China Solar Thermal Alliance indicates that the global cumulative installed capacity for concentrating solar power hit 8800.2 megawatts in 2026.

Even with this upward trend, the market encounters a major hurdle in the form of hefty initial capital costs. The considerable financial investment needed to secure vast tracts of land and build extensive mirror arrays can discourage prospective investors, thereby hindering wider commercial growth.

Market Driver

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Incorporating sophisticated thermal energy storage directly propels the global concentrating solar power market by addressing the issue of intermittent renewable generation. By storing thermal energy in substances such as molten salt, these plants can supply dispatchable power even in the absence of direct sunlight. This functionality allows operators to manage peak demand and maintain grid stability. As highlighted in SolarTech's September 2025 'Concentrated Solar Power Vs PV Complete 2025 Comparison Guide', these systems typically include 6 to 15 hours of thermal storage in their base costs. Such prolonged storage capacity offers a clear edge over conventional photovoltaic setups combined with battery storage.

The rollout of supportive government policies and financial subsidies significantly speeds up the development of commercial facilities. Strategic frameworks and official mandates reduce financial obstacles, motivating developers to fund large-scale regional projects. State directives that prioritize renewable thermal energy consistently boost market confidence. According to a December 2025 SolarPACES report titled 'China targets 15 GW of CSP in next Five Year Plan Official Document', government goals are set to reach an installed capacity of 15 million kilowatts by 2030. Additionally, strong governmental backing translates into tangible growth, with SolarPACES reporting that China's cumulative installed capacity hit 1738.2 megawatts in 2026. These institutional drivers continue to be vital for mitigating high capital costs and advancing worldwide commercialization.

Market Challenge

Steep initial capital costs pose a major financial barrier that limits the wider commercial growth of the global concentrating solar power market. The necessity to purchase vast amounts of land and build expansive mirror arrays calls for massive upfront funding. These stringent financial prerequisites narrow the field of potential investors who can afford to back utility-scale ventures. As a result, the demanding capital requirements stretch out project planning timelines and elevate financial risks. Prospective backers are frequently discouraged by the lengthy return-on-investment periods and significant debt loads required to get projects off the ground.

The highly capital-intensive nature of these projects actively hinders capacity growth in areas without robust financial support. Data from SolarPACES indicates that the levelized cost of electricity for concentrating solar power initiatives in 2025 varied between 0.426 and 0.5323 CNY per kWh. The ongoing requirement to manage substantial early-stage debt ensures that the total energy cost remains higher than that

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of other renewable alternatives. Ultimately, the heavy initial financial burden significantly restricts market reach and postpones broad international adoption.

Market Trends

The creation of hybrid plants that combine concentrating solar power with photovoltaic technology is transforming utility networks by blending daytime solar generation with nighttime thermal power. This setup capitalizes on the advantages of each system, reducing the overall levelized cost of energy and optimizing land utilization better than standalone facilities. This unified approach guarantees a consistent power generation profile without depending entirely on isolated thermal storage. As reported by Green Building Africa in April 2026, within the article '1.5 GW CSP solar and ESS hybrid solar project to deliver 24 Hour renewable power in Xinjiang', the Hami initiative successfully merges 1.35 GW of photovoltaic power with a 150 MW concentrating solar plant.

Deploying concentrating solar power to generate industrial process heat broadens the market's scope beyond traditional electricity production. By harnessing high-temperature thermal energy, facilities can substitute fossil fuel usage in heavy sectors such as manufacturing and mining. This shift helps decarbonize highly energy-dependent processes that pose challenges for standard electrification. According to a January 2026 CleanTechnica report titled 'Here Comes Concentrating Solar Power To Decarbonize Industrial Heat', industrial process heat represents 26 percent of worldwide energy consumption. Such massive demand opens a huge commercial pathway for solar thermal systems, allowing operations to meet their emission reduction goals while maintaining a dependable thermal baseload.

Key Market Players

Abengoa SA

ACWA Power Company

BrightSource Energy, Inc

ENGIE S.A.

Acciona S.A.

Sener Grupo de Ingenier?a, S.A.

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Shanghai Electric Group Company Limited

General Electric Company

Siemens Energy AG

SolarReserve, LLC

Report Scope

In this report, the Global Concentrating Solar Power Market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:

Concentrating Solar Power Market, By Technology

Parabolic Trough

Linear Fresnel

Power Tower

Dish/Engine System

Concentrating Solar Power Market, By Component

Power Block

Solar Field

Thermal Energy Storage System

Concentrating Solar Power Market, By End-User

Utilities

Enhanced Oil Recovery

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- Others

Concentrating Solar Power Market, By Region

- North America
  - United States
  - Canada
  - Mexico
- Europe
  - France
  - United Kingdom
  - Italy
  - Germany
  - Spain
- Asia Pacific
  - China
  - India
  - Japan
  - Australia
  - South Korea
- South America

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Brazil

Argentina

Colombia

Middle East & Africa

South Africa

Saudi Arabia

UAE

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in the Global Concentrating Solar Power Market.

Available Customizations:

Global Concentrating Solar Power Market report with the given market data, TechSci Research offers customizations according to a company's specific needs. The following customization options are available for the report:

Company Information

Detailed analysis and profiling of additional market players (up to five).

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